

**CLAIMS:**

I claim:

- 1) A ventilated breathing-powered protective suit consisting of:
  - a body constructed of an impermeable, semi-permeable or permeable material,
  - vents in the suit's body to allow ambient air to enter the suit's interior,
  - a breathing mask which covers at least the nose and mouth,
  - said breathing mask containing at least one one-way valve connected to the suit's body by an enclosed extension of the suit's body, sealed to the breathing mask or the valve's inlet port, or connected by any other well known technique such as a flexible tube, to allow ambient air to be drawn through the suit's interior and,
  - said breathing mask containing at least one one-way valve to exhaust the exhaled air to the ambient.
- 2) A protective suit described in Claim (1) that fully covers the body.
- 3) A protective suit described in Claim (1) that partially covers the body, such as: uncovered hands, uncovered feet, an upper body covering only or a lower body covering only.
- 4) A protective suit described in Claim (1) constructed, at least partially, of a permeable or semi-permeable material that is capable of passing a sufficient quantity of air into the suit's interior without air inlet vents in the suit's body.
- 5) A protective suit described in Claim (4) in which the permeable or semi-permeable material is capable of filtering particulates or chemical elements or is hydrophilic.
- 6) A protective suit described in Claim (1) in which the vents that allow air to enter the interior of the suit are areas that are commonly designed to be open such as the end of the

legs and arms, the waist of a jacket, under arm vents, back vents and closures such as zippers and buttons.

- 7) A protective suit with a breathing mask described in Claim (1) which has one or more one-way valve elements in the one-way valves, connected in series, to allow for continued operation of the valves if one of the valve elements fails open (fails to close off the reverse flow of air).
- 8) A protective suit described in Claim (1) that is constructed to resist collapse under the negative pressure created when inhaling, using supports such as: stays, reinforcing loops or convolutions.
- 9) A protective suit described in Claim (1) that has an inner three dimensional lining, such as mesh, batting, netting or tubes that allows air to pass through the lining, and the suit's interior, when the suit collapses under the negative pressure created when inhaling.
- 10) A protective suit described in Claim (1) that contains permanently attached particulate filtration and/or chemical absorption elements in the valve ports.
- 11) A protective suit described in Claim (1) that contains replaceable particulate filtration and/or chemical absorption elements in the valve ports.
- 12) A protective suit described in Claim (1) that contains permanently attached particulate filtration and/or chemical absorption elements in the air inlet vents.
- 13) A protective suit described in Claim (1) that contains replaceable particulate filtration and/or chemical absorption elements in the air inlet vents.
- 14) A protective suit described in Claim (1) in which the air vents are shielded to prevent entry of falling liquids such as rain.

- 15) A protective suit described in Claim (1) that has an face shield, or hood, covering the eyes and unprotect areas of the head, sealed to the wearer's face containing:
  - a sight window, or windows, for vision,
  - an air inlet vent or vents to allow air to be drawn into the shield, and
  - an air outlet vent or vents, connected to the suit's interior by an enclosed extension of the suit's body, or any other well-known connection technique such as a flexible tube, to allow air to be drawn from the shield into the suit's interior.
- 16) A face shield described in Claim (15) that has permanently attached particulate filtration and/or chemical absorption elements in the air inlet vents.
- 17) A face shield described in Claim (15) that has replaceable particulate filtration and/or chemical absorption elements in the air inlet vents.
- 18) A protective suit described in Claim (1) with a full face shield, or hood, covering the face and the head of the wearer and the breathing mask, that has:
  - a connection from the breathing mask's exhaled air's one-way valve(s) exit port(s) to the ambient using any of the well-known techniques, such as a flexible tube passing through the shield's exterior or the suit's exterior or by a direct connection between the exit valve and a vent port in the shield or suit, to allow the exhaled air to exit the breathing mask to the ambient,
  - an air outlet vent, or vents, connected to the suit's interior by an extension of the suit's body, or any other well-known connection technique between the shield's vents and the suit's interior such as a flexible tube, to allow air to be drawn through the shield into the suit's interior,
  - a sight window.
- 19) A full-face shield described in Claim (18) that has air inlet vents in the shield to allow air to be drawn through the shield to prevent fogging of the sight window.

20) A full-face shield described in Claim (19) that contains permanently attached particulate filtration and/or chemical absorption elements in the air inlet vent(s).

21) A full-face shield described in Claim (19) that contains replaceable particulate filtration and/or chemical absorption elements in the air inlet vent(s).